SEQUENCE LISTING

<110> TAYLOR, Catherine, et al.

<120> DNA ENCODING APOPTOSIS-INDUCED EUCARYOTIC INITIATION FACTOR-5A AND DEOXYHYPUSINE SYNTHASE AND A METHOD FOR CONTROLLING APOPTOSIS IN ANIMALS AND HUMANS

<130> 10799/13

<140> 09/909,796
<141> 2001-07-23

<160> 21

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 1139
<212> DNA
<213> Rodent

<220>
<221> CDS
<222> (33)...(497)

<400> 1

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gag aca gga gat gca ggg gcc tca gcc acc ttc cca atg cag tgc tca   101
Glu Thr Gly Asp Ala Gly Ala Ser Ala Thr Phe Pro Met Gln Cys Ser
         10                  15                  20

gca tta cgt aag aat ggt ttt gtg gtg ctc aag ggc cgg cca tgt aag   149
Ala Leu Arg Lys Asn Gly Phe Val Val Leu Lys Gly Arg Pro Cys Lys
     25                  30                  35

atc gtc gag atg tct act tcg aag act ggc aag cat ggc cat gcc aag   197
Ile Val Glu Met Ser Thr Ser Lys Thr Gly Lys His Gly His Ala Lys
 40                  45                  50                  55

gtc cat ctg gtt ggt att gat att ttt act ggg aag aaa tat gaa gat   245
Val His Leu Val Gly Ile Asp Ile Phe Thr Gly Lys Lys Tyr Glu Asp
                 60                  65                  70

atc tgc ccg tcg act cat aac atg gat gtc ccc aac atc aaa agg aat   293
Ile Cys Pro Ser Thr His Asn Met Asp Val Pro Asn Ile Lys Arg Asn
             75                  80                  85

gat ttc cag ctg att ggc atc cag gat ggg tac cta tcc ctg ctc cag   341
Asp Phe Gln Leu Ile Gly Ile Gln Asp Gly Tyr Leu Ser Leu Leu Gln
         90                  95                  100
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gac agt ggg gag gta cga gag gac ctt cgt ctg cct gag gga gac ctt   389
Asp Ser Gly Glu Val Arg Glu Asp Leu Arg Leu Pro Glu Gly Asp Leu
    105                 110                 115

ggc aag gag att gag cag aag tat gac tgt gga gaa gag atc ctg atc   437
Gly Lys Glu Ile Glu Gln Lys Tyr Asp Cys Gly Glu Glu Ile Leu Ile
120                 125                 130                 135

aca gtg ctg tcc gcc atg aca gag gag gca gct gtt gca atc aag gcc   485
Thr Val Leu Ser Ala Met Thr Glu Glu Ala Ala Val Ala Ile Lys Ala
                140                 145                 150

atg gca aaa taa ctggcttcca gggtggcggt ggtggcagca gtgatccatg       537
Met Ala Lys  *


agcctacaga ggccctccc ccagctctgg ctgggccctt ggctggactc ctatccaatt 597
tatttgacgt tttatttttgg ttttcctcac cccttcaaac tgtcggggag accctgccct 657
tcacctagct cccttggcca ggcatgaggg agccatggcc ttggtgaagc tacctgcctc 717
ttctctcgca gccctgatgg gggaaaggga gtgggtactg cctgtggttt aggttccccc 777
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caagcaccac tgacagactg gggaccagcc cccttccctg cctgtgtctc ttcccaaacc 957
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aa                                                                1139

<210> 2
<211> 154
<212> PRT
<213> Rodent

<400> 2
Met Ala Asp Asp Leu Asp Phe Glu Thr Gly Asp Ala Gly Ala Ser Ala
 1               5                  10                  15
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            20                  25                  30
Leu Lys Gly Arg Pro Cys Lys Ile Val Glu Met Ser Thr Ser Lys Thr
        35                  40                  45
Gly Lys His Gly His Ala Lys Val His Leu Val Gly Ile Asp Ile Phe
    50                  55                  60
Thr Gly Lys Lys Tyr Glu Asp Ile Cys Pro Ser Thr His Asn Met Asp
65                  70                  75                  80
Val Pro Asn Ile Lys Arg Asn Asp Phe Gln Leu Ile Gly Ile Gln Asp
                85                  90                  95
Gly Tyr Leu Ser Leu Leu Gln Asp Ser Gly Glu Val Arg Glu Asp Leu
            100                 105                 110
Arg Leu Pro Glu Gly Asp Leu Gly Lys Glu Ile Glu Gln Lys Tyr Asp
        115                 120                 125
Cys Gly Glu Glu Ile Leu Ile Thr Val Leu Ser Ala Met Thr Glu Glu
    130                 135                 140
Ala Ala Val Ala Ile Lys Ala Met Ala Lys
145                 150
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<210> 3
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<212> DNA
<213> Rodent

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cagtgctcag cattacgtaa gaatggcttt gtggtgctca aaggccggcc atgtaagatc 120
gtcgagatgt ctactttcgaa gactggcaag cacggccacg ccaaggtcca tctggttggt 180
attgacatct ttactgggaa gaaatatgaa gatatctgcc cgtcaactca taatatggat 240
gtccccaaca tcaaaaggaa tgacttccag ctgattggca tccaggatgg gtacctatca 300
ctgctccagg acagcgggga ggtacgagag gaccttcgtc tccctgaggg agaccttggc 360
aaggagattg agcagaagta cgactgtgga gaagagatcc tgatcacggt gctgtctgcc 420
atgacagagg aggcagctgt tgcaatcaag gccatggcaa aa 462

<210> 4
<211> 462
<212> DNA
<213> Rodent

<220>
<221> misc_feature
<222> (1)...(462)
<223> n = A,T,C or G

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cagtgctcgg ccttgcgcaa aaacggcttc gtggtgctca aaggacgacc atgcaaaata 120
gtggagatgt caacttccaa aactggaaag catggtcatg ccaaggttca ccttgttgga 180
attgatattt tcacgggcaa aaaatatgaa gatatttgtc cttctactca caacatggat 240
gttccaaata ttaagagaaa tgattatcaa ctgatatgca ttcaagatgg ttacctttcc 300
ctgctgacag aaactggtga agttcgtgag gatcttaaac tgccagaagg tgaactaggc 360
aaagaaatag agggaaaata caatgcaggt gaagatgtac aggtgtctgt catgtgtgca 420
atgagtgaag aatatgctgt agccataaaa ccctnngcaa at 462

<210> 5
<211> 462
<212> DNA
<213> Rodent

<400> 5
atggcagatg atttggactt cgagacagga gatgcagggg cctcagccac cttcccaatg 60
cagtgctcag cattacgtaa gaatggtttt gtggtgctca aaggccggcc atgtaagatc 120
gtcgagatgt ctacttcgaa gactggcaag catggccatg ccaaggtcca tctggttggc 180
attgacattt ttactgggaa gaaatatgaa gatatctgcc cgtcgactca taatatggat 240
gtccccaaca tcaaacggaa tgacttccag ctgattggca tccaggatgg gtacctatcc 300
ctgctccagg acagtgggga ggtacgagag gaccttcgtc tgcctgaagg agaccttggc 360
aaggagattg agcagaagta tgactgtgga gaagagatcc tgatcacagt gctgtctgcc 420
atgacagagg aggcagctgt tgcaatcaag gccatggcaa aa 462

<210> 6
<211> 606
<212> DNA
<213> Rodent

<220>

<221> CDS
<222> (1)...(456)

<400> 6
gct gtg tat tat tgg gcc cat aag aac cac ata cct gtg ctg agt cct 48
Ala Val Tyr Tyr Trp Ala His Lys Asn His Ile Pro Val Leu Ser Pro
1 5 10 15

gca ctc aca gac ggc tca ctg ggt gac atg atc ttt ttc cat tcc tat 96
Ala Leu Thr Asp Gly Ser Leu Gly Asp Met Ile Phe Phe His Ser Tyr
20 25 30

aaa aac cca ggc ttg gtc ctg gac atc gtt gaa gac ctg cgg ctc atc 144
Lys Asn Pro Gly Leu Val Leu Asp Ile Val Glu Asp Leu Arg Leu Ile
35 40 45

aac atg cag gcc att ttc gcc aag cgc act ggg atg atc atc ctg ggt 192
Asn Met Gln Ala Ile Phe Ala Lys Arg Thr Gly Met Ile Ile Leu Gly
50 55 60

gga ggc gtg gtc aag cac cac atc gcc aat gct aac ctc atg cgg aat 240
Gly Gly Val Val Lys His His Ile Ala Asn Ala Asn Leu Met Arg Asn
65 70 75 80

gga gct gac tac gct gtt tat atc aac aca gcc cag gag ttt gat ggc 288
Gly Ala Asp Tyr Ala Val Tyr Ile Asn Thr Ala Gln Glu Phe Asp Gly
85 90 95

tca gac tca gga gcc cgg cca gat gag gct gtc tcc tgg ggc aag atc 336
Ser Asp Ser Gly Ala Arg Pro Asp Glu Ala Val Ser Trp Gly Lys Ile
100 105 110

cgg atg gat gca cag cca gta aag gtc tat gct gat gca tct ctg gtt 384
Arg Met Asp Ala Gln Pro Val Lys Val Tyr Ala Asp Ala Ser Leu Val
115 120 125

ttc ccc ttg ctg gtg gct gag aca ttc gcc caa aag gca gat gcc ttc 432
Phe Pro Leu Leu Val Ala Glu Thr Phe Ala Gln Lys Ala Asp Ala Phe
130 135 140

aga gct gag aag aat gag gac tga gcagatgggt aaagacggag gcttctgcca 486
Arg Ala Glu Lys Asn Glu Asp *
145 150

caccttatt tattatttgc ataccaaccc ctcctgggcc ctctccttgg tcagcagcat 546
cttgagaata aatggccttt ttgttggttt ctgtaaaaaa aggactttaa aaaaaaaaaa 606

<210> 7
<211> 151
<212> PRT
<213> Rodent

<400> 7
Ala Val Tyr Tyr Trp Ala His Lys Asn His Ile Pro Val Leu Ser Pro
1 5 10 15

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            20                  25                  30
Lys Asn Pro Gly Leu Val Leu Asp Ile Val Glu Asp Leu Arg Leu Ile
        35                  40                  45
Asn Met Gln Ala Ile Phe Ala Lys Arg Thr Gly Met Ile Ile Leu Gly
    50                  55                  60
Gly Gly Val Val Lys His Ile Ala Asn Ala Asn Leu Met Arg Asn
65                  70                  75                  80
Gly Ala Asp Tyr Ala Val Tyr Ile Asn Thr Ala Gln Glu Phe Asp Gly
                85                  90                  95
Ser Asp Ser Gly Ala Arg Pro Asp Glu Ala Val Ser Trp Gly Lys Ile
            100                 105                 110
Arg Met Asp Ala Gln Pro Val Lys Val Tyr Ala Asp Ala Ser Leu Val
        115                 120                 125
Phe Pro Leu Leu Val Ala Glu Thr Phe Ala Gln Lys Ala Asp Ala Phe
    130                 135                 140
Arg Ala Glu Lys Asn Glu Asp
145                 150
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<210> 8
<211> 453
<212> DNA
<213> Rodent

<400> 8
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atcgttgagg acctgaggct catcaacaca caggccatct ttgccaagtg cactgggatg 180
atcattctgg gcgggggcgt ggtcaagcac cacattgcca atgccaacct catgcggaac 240
ggggccgact acgctgttta catcaacaca gcccaggagt ttgatggctc tgactcaggt 300
gcccgaccag acgaggctgt ctcctggggc aagatccggg tggatgcaca gcccgtcaag 360
gtctatgctg acgcctccct ggtcttcccc ctgcttgtgg ctgaaacctt tgcccagaag 420
atggatgcct tcatgcatga gaagaacgag gac 453

<210> 9
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<221> misc_feature
<222> (1)...(20)
<223> n = A,T,C or G

<400> 9
tcsaarachg gnaagcaygg 20

<210> 10
<211> 42
<212> DNA
<213> Rodent

<220>

<223> Primer

<400> 10
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<210> 11
<211> 972
<212> DNA
<213> Rodent

<220>
<221> CDS
<222> (1)...(330)

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1 5 10 15

gat att ttt act ggg aag aaa tat gaa gat atc tgc ccg tcg act cat 96
Asp Ile Phe Thr Gly Lys Lys Tyr Glu Asp Ile Cys Pro Ser Thr His
20 25 30

aac atg gat gtc ccc aac atc aaa agg aat gat ttc cag ctg att ggc 144
Asn Met Asp Val Pro Asn Ile Lys Arg Asn Asp Phe Gln Leu Ile Gly
35 40 45

atc cag gat ggg tac cta tcc ctg ctc cag gac agt ggg gag gta cga 192
Ile Gln Asp Gly Tyr Leu Ser Leu Leu Gln Asp Ser Gly Glu Val Arg
50 55 60

gag gac ctt cgt ctg cct gag gga gac ctt ggc aag gag att gag cag 240
Glu Asp Leu Arg Leu Pro Glu Gly Asp Leu Gly Lys Glu Ile Glu Gln
65 70 75 80

aag tat gac tgt gga gaa gag atc ctg atc aca gtg ctg tcc gcc atg 288
Lys Tyr Asp Cys Gly Glu Glu Ile Leu Ile Thr Val Leu Ser Ala Met
85 90 95

aca gag gag gca gct gtt gca atc aag gcc atg gca aaa taa 330
Thr Glu Glu Ala Ala Val Ala Ile Lys Ala Met Ala Lys *
100 105

ctggcttcca gggtggcggt ggtggcagca gtgatccatg agcctacaga ggcccctccc 390
ccagctctgg ctgggccctt ggctggactc ctatccaatt tatttgacgt tttattttgg 450
ttttcctcac cccttcaaac tgtcgggggag accctgccct tcacctagct ccctttggcca 510
ggcatgaggg agccatggcc ttggtgaagc tacctgcctc ttctctcgca gccctgatgg 570
gggaaaggga gtgggtactg cctgtggttt aggttcccct ctccctttt ctttttaatt 630
caatttggaa tcagaaagct gtggattctg gcaaatggtc ttgtgtcctt tatcccactc 690
aaacccatct ggtcccctgt tctccatagt ccttcacccc caagcaccac tgacagactg 750
gggaccagcc cccttccctg cctgtgtctc ttcccaaacc cctctatagg ggtgacaaga 810
agaggagggg gggaggggac acgatccctc ctcaggcatc tgggaaggcc ttgcccccat 870
gggctttacc ctttcctgtg ggctttctcc ctgacacatt tgttaaaaat caaacctgaa 930
taaaactaca agtttaatat gaaaaaaaaa aaaaaaaaaa aa 972

<210> 12

<211> 109
<212> PRT
<213> Rodent

<400> 12
Ser Lys Thr Gly Lys His Gly His Ala Lys Val His Leu Val Gly Ile
 1   5   10   15
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            20   25   30
Asn Met Asp Val Pro Asn Ile Lys Arg Asn Asp Phe Gln Leu Ile Gly
        35   40   45
Ile Gln Asp Gly Tyr Leu Ser Leu Leu Gln Asp Ser Gly Glu Val Arg
    50   55   60
Glu Asp Leu Arg Leu Pro Glu Gly Asp Leu Gly Lys Glu Ile Glu Gln
65   70   75   80
Lys Tyr Asp Cys Gly Glu Glu Ile Leu Ile Thr Val Leu Ser Ala Met
                85   90   95
Thr Glu Glu Ala Ala Val Ala Ile Lys Ala Met Ala Lys
            100   105

<210> 13
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 13
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<210> 14
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 14
atatctcgag ccttgattgc aacagctgcc   30

<210> 15
<211> 489
<212> DNA
<213> Rodent

<220>
<221> CDS
<222> (33)...(485)

<400> 15
caggtctaga gttggaatcg aagcctctta aa atg gca gat gat ttg gac ttc   53
                                    Met Ala Asp Asp Leu Asp Phe
                                     1   5

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gag aca gga gat gca ggg gcc tca gcc acc ttc cca atg cag tgc tca   101
Glu Thr Gly Asp Ala Gly Ala Ser Ala Thr Phe Pro Met Gln Cys Ser
          10                  15                  20

gca tta cgt aag aat ggt ttt gtg gtg ctc aag ggc cgg cca tgt aag   149
Ala Leu Arg Lys Asn Gly Phe Val Val Leu Lys Gly Arg Pro Cys Lys
      25                  30                  35

atc gtc gag atg tct act tcg aag act ggc aag cat ggc cat gcc aag   197
Ile Val Glu Met Ser Thr Ser Lys Thr Gly Lys His Gly His Ala Lys
 40                  45                  50                  55

gtc cat ctg gtt ggt att gat att ttt act ggg aag aaa tat gaa gat   245
Val His Leu Val Gly Ile Asp Ile Phe Thr Gly Lys Lys Tyr Glu Asp
                60                  65                  70

atc tgc ccg tcg act cat aac atg gat gtc ccc aac atc aaa agg aat   293
Ile Cys Pro Ser Thr His Asn Met Asp Val Pro Asn Ile Lys Arg Asn
            75                  80                  85

gat ttc cag ctg att ggc atc cag gat ggg tac cta tcc ctg ctc cag   341
Asp Phe Gln Leu Ile Gly Ile Gln Asp Gly Tyr Leu Ser Leu Leu Gln
        90                  95                  100

gac agt ggg gag gta cga gag gac ctt cgt ctg cct gag gga gac ctt   389
Asp Ser Gly Glu Val Arg Glu Asp Leu Arg Leu Pro Glu Gly Asp Leu
    105                 110                 115

ggc aag gag att gag cag aag tat gac tgt gga gaa gag atc ctg atc   437
Gly Lys Glu Ile Glu Gln Lys Tyr Asp Cys Gly Glu Glu Ile Leu Ile
120                 125                 130                 135

aca gtg ctg tcc gcc atg aca gag gag gca gct gtt gca atc aag gct   485
Thr Val Leu Ser Ala Met Thr Glu Glu Ala Ala Val Ala Ile Lys Ala
                140                 145                 150

cgag                                                             489
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<210> 16
<211> 151
<212> PRT
<213> Rodent

<400> 16

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            20                  25                  30
Leu Lys Gly Arg Pro Cys Lys Ile Val Glu Met Ser Thr Ser Lys Thr
        35                  40                  45
Gly Lys His Gly His Ala Lys Val His Leu Val Gly Ile Asp Ile Phe
    50                  55                  60
Thr Gly Lys Lys Tyr Glu Asp Ile Cys Pro Ser Thr His Asn Met Asp
65                  70                  75                  80
Val Pro Asn Ile Lys Arg Asn Asp Phe Gln Leu Ile Gly Ile Gln Asp
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                85                  90                  95
Gly Tyr Leu Ser Leu Leu Gln Asp Ser Gly Glu Val Arg Glu Asp Leu
            100                 105                 110
Arg Leu Pro Glu Gly Asp Leu Gly Lys Glu Ile Glu Gln Lys Tyr Asp
        115                 120                 125
Cys Gly Glu Glu Ile Leu Ile Thr Val Leu Ser Ala Met Thr Glu Glu
    130                 135                 140
Ala Ala Val Ala Ile Lys Ala
145                 150
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<210> 17
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 17
gtctgtgtat tattgggccc 20

<210> 18
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 18
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<210> 19
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 19
ttgaaggggt gaggaaaa 18

<210> 20
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 20
ttgagtggga taaag 15

<210> 21

<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 21
aatcatctgc cattttaa 18